

KARNATAK UNIVERSITY DHARWAD



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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "**Number Theory and its Application**" submitted by **Reg.No.19S14127 : Miss Soumya. C. Sungar** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 02/08/2021


Project Guide

Dr. (Smt.) Asha. S.K.
Dr. ASHA. S. K.

Asst. Professor
Dept. of Mathematics
Karnatak University, Dharwad

Examiners:

1)


07/08/2021

2)

Chairman

Prof. H. S. Ramane

CHAIRMAN

Department of Mathematics
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DHARWAD-580 003

KARNATAKA UNIVERSITY, DHARWAD

Department of Mathematics



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Date: 30-7-2021

CERTIFICATE

This is to certify that the M. Sc. Project work dissertation entitled "GRAPH THEORY" submitted to the Karnataka University, Dharwad by Miss. SOUMYA MUNNOLI as a partial fulfillment for the award of the degree of Master of Science in Mathematics represents her project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. She has carried out this project work at the P.G. Department of Mathematics, Karnataka University, Dharwad under my supervision and Guidance.

Dr.(Smt) Asha. S.K.
Project Guide
Department of Mathematics
Karnataka University, Dharwad
Dr. Asha. S.K.
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Dept. of Mathematics
Karnataka University, Dharwad


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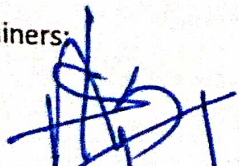
Department of Mathematics,
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CHAIRMAN
Department of Mathematics
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DHARWAD-580 003

Examiners:

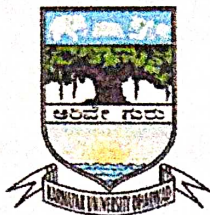
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KARNATAK UNIVERSITY, DHARWAD

Department Of Mathematics

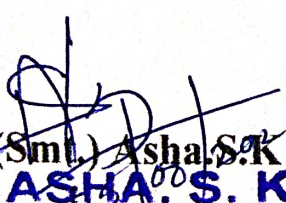


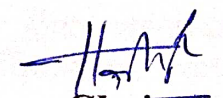
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CERTIFICATE

This is to certify that the M. Sc. project work dissertation entitled "**Numerical Methods**" submitted to the Karnatak University, Dharwad by **Miss. Soumya Patil (19S14129)** as a partial fulfilment for the award of the Degree of **Master of Science in Mathematics** represents her project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. She has carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.



Dr. (Smt.) Asha S.K.
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Karnatak University, Dharwad
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Examiners:

1.

2.


07/08/2021

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Department of Mathematics



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CERTIFICATE

Examination Reg.No.:

Date:

This is to certify that the M.Sc. project work dissertation called "LINEAR ALGEBRA THROUGH MATRICES" Submitted to the Karnatak University, Dharwad by Miss. Sushma Hegde as a partial fulfillment for the award of the Degree of Master of Science in Mathematics represents her project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other university or Institution. She has carried out this project work at the P.G. Department of Mathematics, Karnatak University, Dharwad under my supervision and guidance.

Dr. (Smt) Asha S.K.

Project Guide
DR. ASHA S. K.


Asst. Professor
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Chairman

Department of Mathematics
Karnatak University, Dharwad.
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Examiners

1.


07/08/2021

2.

KARNATAK UNIVERSITY, DHARWAD
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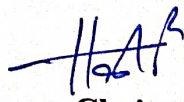
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Date:

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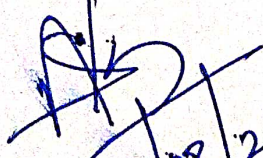
This is to certify that the M.Sc. project work Dissertation entitled **"BESSEL'S DIFFERENTIAL EQUATION"** submitted to the Karnatak University, Dharwad by Miss. **Swati .B.Demagondanvar** as a partial for the fulfilment for the award of this or any other degree or diploma of this or any other University or Institution. She has carried out this project work at the P.G. Department of Mathematics, Karnatak University, Dharwad under my supervision and guidance.


Dr. (Smt.) Asha S. K.
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Examiners:


27/08/2021

KARNATAK UNIVERSITY, DHARWAD

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Date: 30/07/2021

Certificate

This is to certify that the M.Sc. project work dissertation entitled "**GOLDEN RATIO**" submitted to the Karnatak University, Dharwad by Miss. Swati Joshi as a partial fulfillment for the award of the Degree of Master of Science in Mathematics represents her project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. She has carried out this project work at the P.G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

Dr. (Smt.) Asha S. K.

Project Guide

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Asst. Professor

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KARNATAKA UNIVERSITY, DHARWAD

Department of Mathematics



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Date: 30-7-2021

CERTIFICATE

This is to certify that the M. Sc. Project work dissertation entitled "**GRAPH THEORY**" submitted to the Karnataka University, Dharwad by **Miss, THRIVENI.Y.N.** as a partial fulfillment for the award of the degree of **Master of Science in Mathematics** represents her project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. She has carried out this project work at the P.G. Department of Mathematics, Karnataka University, Dharwad under my supervision and Guidance.

Dr.(Smt) Asha. S. K.

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Examiners:

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KARNATAK UNIVERSITY, DHARWAD

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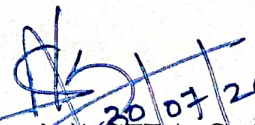


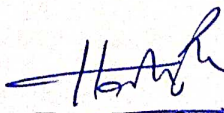
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Date: 30-7-2021

CERTIFICATE

This is to certify that the M.Sc project work dissertation entitled "NUMERICAL OPTIMIZATION" submitted to Department of Mathematics, Karnatak University, Dharwad by Mr. Tilak Krishna Moger and Mr. Vijayraj S. Kamble as a partial fulfillment for the award of degree of Master of science in mathematics and it has not been submitted previously, for the award of any degree or diploma of this or any other University or Institution. They have carried out this project work at the department of studies and research in Mathematics, Karnatak University, Dharwad under my supervision and guidance.

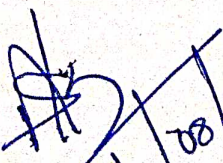

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Dr. H. S. Ramane
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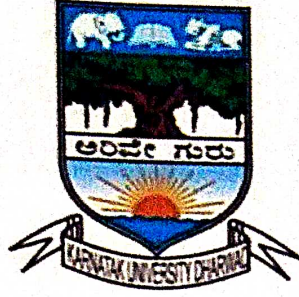
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2.


20/07/2021

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P. G. DEPARTMENT OF MATHEMATICS CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "LAPLACE TRANSFORMS AND ITS APPLICATIONS" submitted by Reg.No.19S14135: Miss.Ujama.N.Patil of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of M.Sc., in Mathematics, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

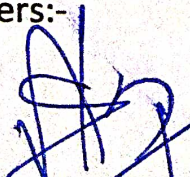
Place: Dharwad

Date: 2-8-2021


Project Guide
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Prof. H. S. Ramane
CHAIRMAN
Department of Mathematics
Karnatak University,
DHARWAD-580 003

Examiners:-


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Phone: 0836-221522(O)

Date: 2-8-2021

CERTIFICATE

This is to certify that the M. Sc. project work dissertation entitled "**Linear Algebra**" submitted to the Karnatak University, Dharwad by Miss. Vidyashri S Gouda (19S14136) as a partial fulfilment for the award of Degree of **Master of Science in Mathematics** represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

Dr. (Smt). Asha.S.K.
Project Guide
Department of Mathematics
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02/08/2021
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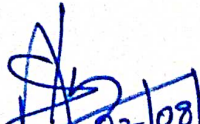
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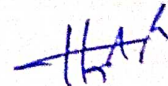
Date: 2-8-2021

CERTIFICATE

This is to certify that the M. Sc. Project work dissertation entitled "**FOURIER ANALYSIS AND IT'S APPLICATIONS**" submitted to the Karnatak University, Dharwad By Miss. **Yasmin Saiyad** as a partial fulfillment for the award of the Degree of Master of Science in Mathematics represents her project work and it has not been previously, for the award of any degree or diploma or any other University or Institution. She has carried out this project work at the P.G. Department of Mathematics, Karnatak University, Dharwad Under my supervision and guidance.


Dr.(Smt.) Asha S.K.
Dr. ASHA. S. K.
Project guide Asst. Professor
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Department of Mathematics
Karnatak University, Dharwad



Karnatakuniversity, Dharwad


Chairman

Department of Mathematics

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Examiners:

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "PI : GEOMETRIC ASTONISHMENT" submitted by Reg.No.19S14059: Miss. Aishwarya.V.Yaligar and Reg.No.19S14058: Miss.Aishwarya of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project work carried out by them under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 31.7.21

 31.7.21

Project Guide

Prof. B. Basavanagoud



Chairman

Prof. H. S. Ramane

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1)

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Date: 30-07-2021

CERTIFICATE

This is to certify that the M. Sc. project work dissertation entitled "e : The Scientific Base" submitted to the Karnatak University, Dharwad by Miss. Akshata R. Meti (19S14060) as a partial fulfilment for the award of Degree of Master of Science in Mathematics represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

B. Basavanagoud
30-7-21

Dr. B. Basavanagoud
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H. H. H.
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Date: 30/07/2021

CERTIFICATE

This is to certify that the M. Sc. project work dissertation entitled "e : The Scientific Base" submitted to the Karnatak University, Dharwad by Miss. Ankita S. Kotyal (19S14061) as a partial fulfilment for the award of Degree of Master of Science in Mathematics represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

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Dr. B. Basavanagoud
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Examiners:

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**KARNATAK UNIVERSITY
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DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that Ms.ARALI NIKITA SHIVALINGAPPA and ARPITHA K .P, IV semester, M.Sc(Mathematics) has worked on the project entitled “i:IMAGINARY, BUT CAN’T IGNORE IT” under my supervision and guidance.

Place : Dharwad

Date : 30/07/2021

B. Basavanagoud 30.7.
(Dr. B. BASAVANAGOUD)

Professor
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H. A. R.
CHAIRMAN
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DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that Ms. ATIKA KARIGAR, IV semester, M.Sc (Mathematics) has worked on the project entitled "EULER'S IDENTITY" under my supervision and guidance.

Place : Dharwad
Date : 31/07/2021

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(Dr. B. BASAVANAGOUD)

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DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that Ms. CHAITRA KAMALAKAR SHET, IV semester, M.Sc (Mathematics) has worked on the project entitled "SYSTEM OF NON-LINEAR DIFFERENTIAL EQUATIONS" under my supervision and guidance.

Place : Dharwad

Date : 30-07-2021

B. Basavanagoud 30.7.21

(Dr. B. BASAVANAGOUD)

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DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that Ms.DARSHANA GOWDA, IV semester, M.Sc (Mathematics) has worked on the project entitled "NUMERICAL METHODS" under my supervision and guidance.

Place : Dharwad

Date : 30-07-2021

B. Basavanagoud 30-7-21
(Dr. B. BASAVANAGOUD)

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DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that Ms.DEEPA MADIVALAR, IV semester, M.Sc (Mathematics) has worked on the project entitled "EULER'S FORMULA AND ITS APPLICATION" under my supervision and guidance.

Place : Dharwad

Date : 30-07-2021

B. Basavanagoud

(Dr. B. BASAVANAGOUD)

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DEPARTMENT OF MATHEMATICS

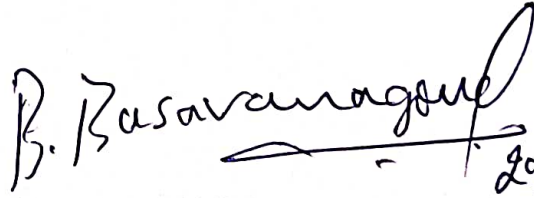
CERTIFICATE

This is to certify that Mr. GANESH PUJAR IV semester, M.Sc (Mathematics) has worked on the project entitled " VECTOR SPACE "under my supervision and guidance.

Reg Nos- 19514069

Place : DHARWAD

Date : 29/7/21

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(Dr. B. BASAVANAGOUD)

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Chairman
Department of Mathematics
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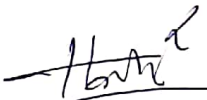
Dr.H.S.Ramane
Chairman
Department of Mathematics

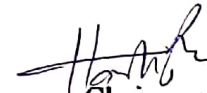
Pavate Nagar, Dharwad-580 003
Karnataka, India
Phone: 0836-221522(O)

Date: 30/07/2021

CERTIFICATE

This is to certify that the M. Sc. project work dissertation entitled "**Ordinary Differential equation**" submitted to the Karnatak University, Dharwad by **Miss. Lavanya Shivappa Kadadi (19S14081)** as a partial fulfilment for the award of Degree of **Master of Science in Mathematics** represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.


Dr. H. S. Ramane
Project Guide M.Sc., Ph.D., PGDIP
Department of Mathematics
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Examiners:

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7-8-21

2.



KARNATAK UNIVERSITY DHARWAD

CERTIFICATE

This is to certify that, the M.Sc project work dissertation entitled "FIBONACCI SEQUENCE & IT'S APPLICATIONS" submitted to the Karnatak University, Dharwad by Mr. MANJUNATH H. TALAWAR and Mr. NAVEENA F. MANASHETTY as partial fulfilment for the award of the degree of Master of Science in Mathematics and it has not been submitted previously, for the award of any other degree or diploma of this or any other university or institution. They have carried out this project work at the department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

Place: Dharwad

Date:


Project Guide

Dr. H. S. RAMANE

Professor

Department of Mathematics,

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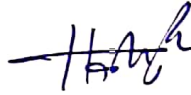
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Dr.H S Ramane Dharwad-580003

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Karnataka, India

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This is to certify that the M.Sc. project work dissertation entitled "Elliptical Differential Equation" submitted to the Karnataka University, Dharwad by Miss. Laxmi M Hattimani (Reg.No:19S14082) as a partial fulfilment for the award of the Degree of Master of Science in Mathematics represents his project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. She has carried out this project work at the P. G. Department of Mathematics, Karnataka University, Dharwad, under my supervision and guidance.


Dr. H S Ramane
Dr. H. S. RAMANE
M.Sc., Ph.D., PGDIP
Project Guide
Professor
Department of Mathematics
Karnataka University, Dharwad
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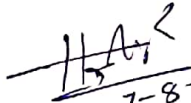

Chairman

Department of Mathematics
Karnataka University,
Dharwad

CHAIRMAN

Department of Mathematics
Karnataka University,
Dharwad - 580 003

Examiners:

1. 
7-8-21

2.

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "**GRAPH THEORY AND ITS APPLICATIONS**" submitted by us **Miss. M. SREELEKHA (Reg.No.19S14083)** AND **Miss. MEGHA.S.MUGANUR (Reg.No.19S14088)** of fourth semester M.Sc. in Mathematics course to the Karnataka University, Dharwad for the award of the degree of **M.Sc. in Mathematics**, is a result of M.Sc., project work carried out by them under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 2-8-2021

Project Guide

Prof. H.S. Ramane

Dr. H.S. RAMANE
M.Sc., Ph.D., PGDM

Professor

Examiners:-

Department of Mathematics
Karnatak University,
Dharwad 580003 India

1)

H.S. Ramane
7-8-21

2)

H.S. Ramane

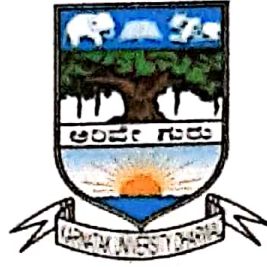
Chairman

Prof. H.S. Ramane

CHAIRMAN

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DHARWAD-580 003

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P. G. DEPARTMENT OF MATHEMATICS CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "Numerical Analysis" submitted by Reg.No.19S14086: Miss.Manasa Naik and Reg.No.19S14089 Miss. Mehreen Hansi of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of M.Sc., in Mathematics, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 31/07/2021

Project Guide & Chairman

Prof. H. S. Ramane
Department of Mathematics
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DHARWAD-580 003

Examiners:-

1)
7-8-21

2)



KARNATAK UNIVERSITY DHARWAD

CERTIFICATE

This is to certify that, the M.Sc project work dissertation entitled "**CANONICAL FORMS OF MATRICES**" submitted to the Karnatak University, Dharwad by **Mr. MAHESHAGOUDA** and **Mr. MALLAPPA MELLIKERI** as partial fulfilment for the award of the degree of Master of Science in Mathematics and it has not been submitted previously, for the award of any other degree or diploma of this or any other university or institution. They have carried out this project work at the department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

Place: Dharwad

Date: 30-7-2021

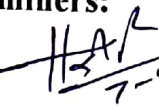

Project Guide

Dr. H. S. RAMANE
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Dharwad - 580003, India


Chairman

CHAIRMAN
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1. 
7-8-21
- 2.

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DEPARTMENT OF MATHEMATICS

Certificate

This is to certify that the dissertation entitled "Group Actions And Applications" submitted to the Department of Mathematics, Karnatak University, Dharwad, is satisfactorily completed by Miss Namrata Prasad Phadke for the partial fulfillment of the requirement for the award of the Degree of Master of Science in Mathematics during the academic year 2020-2021.


Dr. H. S. Ramane


Project Guide and The Chairman
Department of Mathematics Karnatak

CHANDAN
Department of Mathematics
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DHARWAD-580 003

Examiners:

Place: Dharwad

Date: 30-07-2021

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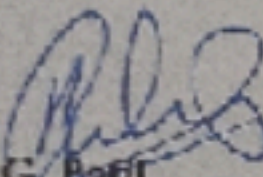
Dr. P. G. Patil
Professor
Department of Mathematics

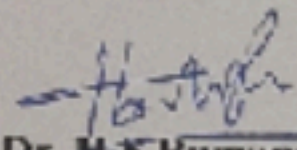
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Phone: 0836-221522(O)

Date: 30.07.2021

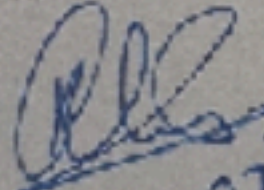
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This is to certify that the M. Sc. project work dissertation entitled **"APPLICATIONS OF VECTOR SPACE"** submitted to the Karnatak University, Dharwad by **Mr. Naveen Shankrappa Sajjan (19814092)** and **Mr. Praveen Ishwarappa Kerimani (19S14101)** as a partial fulfillment for the award of Degree of Master of Science in Mathematics represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.


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30/07/2021
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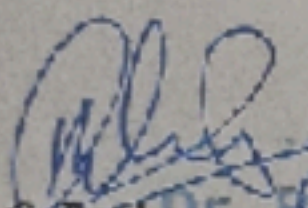
Dr. P. G. Patil
Professor
Department of Mathematics

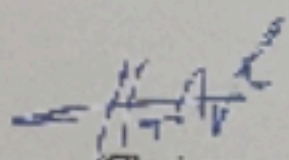
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Date: 31/12/2021

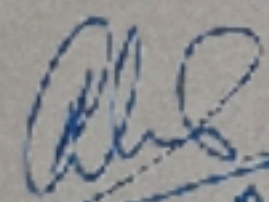

CERTIFICATE

This is to certify that the M. Sc. project work dissertation entitled "Non-linear partial differential equations" submitted to the Karnatak University, Dharwad by Miss. Pallavi Salunke (19814097) and Miss. Pooja Randewadi (19814098) as a partial fulfilment for the award of Degree of Master of Science in Mathematics represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.


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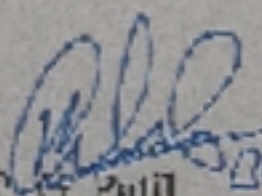
Dr. P. G. Patil
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Department of Mathematics

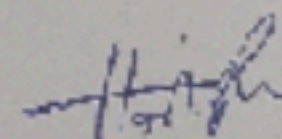
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Date: 30-07-2021

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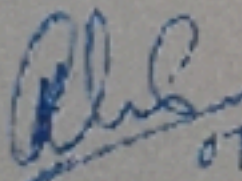
This is to certify that the M.Sc project work dissertation entitled "TOPOLOGICAL VECTOR SPACES" submitted to the Karnatak University, Dharwad by Miss. P ANUSILA (19S14094) Miss. PALLAVI IRA HALLER (19S14096) and Miss. POORNIMA BASAVARAJ KARIMOLI (19S14099) as a partial fulfilment for the award of Degree of Master of Science in Mathematics represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.


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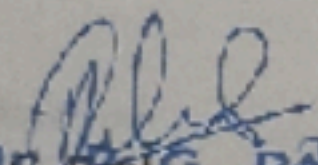
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Department of Mathematics

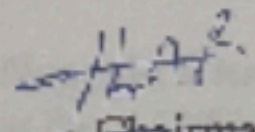
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This is to certify that the M. Sc. project work dissertation entitled "COMPACT SPACES" submitted to the Karnatak University, Dharwad by Miss. Noorain Changapur (19S14093) and Miss. Padmarani Padasalagi (19S14095) as a partial fulfilment for the award of Degree of Master of Science in Mathematics represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

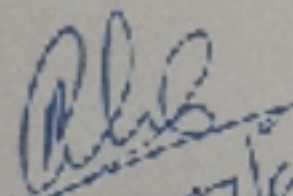

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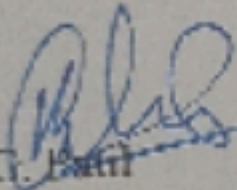
Payate Nagar, Dharwad-580 003 Professor

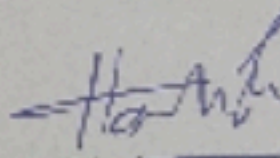
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Date: 30/07/2021

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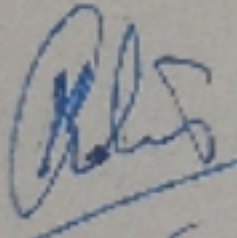
This is to certify that the M.Sc. project work dissertation entitled "**FUZZY NUMBERS**" submitted to the Karnatak University, Dharwad by **Miss. PRATIBHA METI (19S14100)** and **Miss. PREETI KALAKOTI (19S14102)** as a partial fulfilment for the award of Degree of **Master of Science in Mathematics** represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the P.G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.


Dr. P. G. Patil
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Ph. D.
Professor
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Chairman
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Karnatak University, Dharwad
Dharwad 580 003

1.

2.


07/08/2021



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CERTIFICATE

This is to certify that the M.Sc. project work dissertation entitled **“LAPLACE TRANSFORM AND ITS APPLICATIONS”** submitted to Department of Mathematics, Karnatak University Dharwad by **MS. LALITA MADIWALASHIVAYOGI ADAMANI, MS. GURUDEV SHIVANAND KAPANUR and MS. KUNJARANI TELI** as a partial fulfillment for the award of degree of Master of Science in Mathematics and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the Department of Mathematics, Karnatak University, Dharwad under my supervision and guidance.

Place: Dharwad

Date: 30-07-2021

Dr. P. M. Patil

Professor
Dr. P. M. PATIL
M. Sc., Ph. D.
Department of Mathematics
Karnatak University, Dharwad
Department of Mathematics
Karnatak University
Dharwad-580 003, India.

Examiners:

1.

2.

CHAIRMAN
Department of Mathematics
Karnatak University,
DHARWAD-580 003



KARNATAK UNIVERSITY DHARWAD

CERTIFICATE

This is to certify that, the M.Sc project work dissertation entitled **"PARTIAL DIFFERENTIAL EQUATION AND ITS APPLICATIONS"** submitted to Karnatak University, Dharwad by Ms. **GOURI JAKKAPPA JALAPUR** (Reg. No. 19S14073) and Ms. **KAVITA ANGADI** (Reg. No. 19S14078) as a partial fulfillment for the award of the degree of **Master of Science in Mathematics** represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. They have carried out this project work at the Department of Studies in Mathematics, Karnatak University, Dharwad, under constant support and immense guidance of Dr. P. M. Patil, Department of Mathematics, Karnatak University, Dharwad during academic year 2020-21.

Dr. P. M. Patil

Project guide

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Karnatak University
Dharwad-580 003, India.

Examiners:

(1)

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Chairman

Department of Mathematics,
Karnatak University, Dharwad.

CHAIRMAN

Department of Mathematics
Karnatak University,
DHARWAD-580 003

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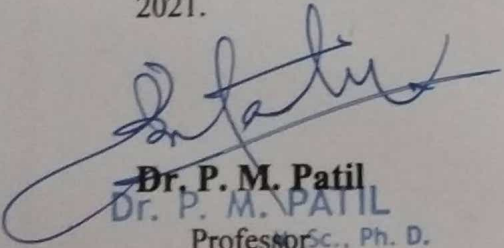
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DEPARTMENT OF MATHEMATICS

Certificate

This is to certify that the dissertation entitled "Boundary Value Problems In Rectangular Coordinates" submitted to the Department of Mathematics, Karnatak University, Dharwad, is satisfactorily completed by Mr. Javid Aqtar I. Shaikh and Mr. Kalakamalleshwar D for the partial fulfillment of the requirement for the award of the Degree of Master of Science in Mathematics during the academic year 2020-2021.


Dr. P. M. Patil

Professor Sc., Ph. D.

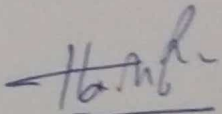
Professor

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Dharwad


Dr. H. S. Ramane

The Chairman

Department of Mathematics

Karnatak University

Dharwad

DHARWAD-580 003

Place: Dharwad

Date: 

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2.



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KARNATAKA UNIVERSITY, DHARWAD

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled **"GREEN'S FUNCTIONS WITH APPLICATIONS"** submitted by, **Mr. GIREESH M SINDHOOR** and **Mr. GIREESH PUJARI** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc. in Mathematics**, is a result of M.Sc., project work carried out by them under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

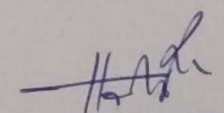
Place: Dharwad

Date:


Dr. P. M. Patil

Professor

Department of Mathematics
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Dharwad-580 003, India.



Dr. H. S. Ramane

Chairman

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1)



2)

KARNATAK UNIVERSITY, DHARWAD



Certificate

This is to certify that the M.Sc project work dissertation entitled "**NUMERICAL METHODS FOR DIFFERENTIAL EQUATION**" submitted to department of Mathematics, Karnataka University, Dharwad by **Miss. Geeta B. Kalappanavar and Miss. Jyoti Choukashi** as a partial fulfillment for the award of degree of Master of Science in Mathematics and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. She has carried out this project work at the Department of Mathematics, Karnataka University, Dharwad under my supervision and guidance.

Place : Dharwad

Date : 30/07/2021

Professor
Dr. P.M. Patil
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Karnataka University Dharwad
Professor
Department of Mathematics
Karnatak University
Dharwad-580 003, India.

Chairman:
Dr. H.S. Ramane
CHAIRMAN
Dept. of Mathematics
Department of Mathematics
Karnataka University Dharwad
Karnatak University,
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CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled **"DIFFERENTIATION AND IT'S APPLICATIONS"** submitted by **Miss. SEEMA. R. MORAB (Reg.No.19514118), Miss. SHILPA (19S14122), Miss. Shweta. D. Bhajantri (19S14124)** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc. in Mathematics**, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 30-7-2021

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Dr. (Smt.) R. S. Dyavanal
Dr. (Smt.) R. S. Dyavanal
Department of Mathematics
Karnatak University, Dharwad-03

Examiners:-

1) R. S. Dyavanal - RSD 7/8/21
2)

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Dr. (smt) R. S. Dyavanal.
Professor
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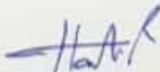
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This is to certify that the M. Sc. project work dissertation entitled "**Numerical Methods**" submitted to the Karnatak University, Dharwad by **Miss.Shwetha.S.Janagi.(Reg.No.19S14125),Miss.Shankarevva.M.Hunasheekatti(Reg.No.19S14121) and Miss.Seetha Bai.G.(Reg.No.19S14119)** as a partial fulfilment for the award of Degree of **Master of Science in Mathematics** represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. He/She has carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.


Dr. (smt) R. S. Dyavanal.
Project Guide
Department of Mathematics
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Chairman,
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1. **R. S. Dyavanal - Rep 7/8/2021**
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Department of Mathematics



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Date: 30/07/2021

CERTIFICATE

This is to certify that the M. Sc. project work dissertation entitled "GRAPH THEORY AND ITS APPLICATIONS" submitted to the Karnatak University, Dharwad by Sangeeta Hosamani(Reg.No.19S14116), Sanjana K Janjalli(Reg.No.19S14117) and Smeeta I Kuriyavar(Reg.No.19S14126) as a partial fulfilment for the award of Degree of Master of Science in Mathematics represents their project work and it has not been submitted previously, for the award of any other degree or diploma of this or any other University or Institution. She has carried out this project work at the P. G. Department of Mathematics, Karnatak University, Dharwad, under my supervision and guidance.

RSD

Dr.(smt)R.S.Dyavanal
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Dr.(smt)R.S.Dyavanal
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Examiners:

1. R. S. Dyavanal - RSD 7/8/2021
- 2.



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KARNATAK UNIVERSITY, DHARWAD

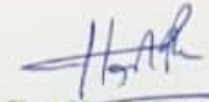
CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled **"DIFFERENTIAL EQUATIONS AND IT'S APPLICATIONS"** submitted by, **Mr. SANGAM MADABHAVI, Mr. SHREENATHA and Mr. SHANKARANAND** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc. in Mathematics**, is a result of M.Sc., project work carried out by them under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 30-07-2021


Dr. (Smt) R. S. DYAVANAL
Professor
Department of Mathematics
Karnatak University, Dharwad
Karnatak University, Dharwad-580 003


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Karnatak University, Dharwad
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Examiners:-

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- 2)

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This is to certify that the M.Sc., project work dissertation entitled "**A study of wavelets, Daubechies wavelet based numerical method for the solution of volterra integral equation of second kind and applications of wavelets in Electronics**" submitted by **Reg.No.19S14103 Mr.Punitraj** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project work carried out by him under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date:

Project Guide

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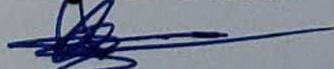
CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "**A STUDY OF WAVELETS, COIFMAN WAVELET BASED NUMERICAL METHOD FOR THE SOLUTION OF LINEAR VOLTERRA INTEGRAL EQUATIONS AND APPLICATIONS OF WAVELETS IN WIDEBAND SCATTERING AND ENVIRONMENTAL IMAGING**" submitted by **Reg. No. 19S14104: Miss. R. PRAVALLIKA** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 02.08.2021

Project Guide


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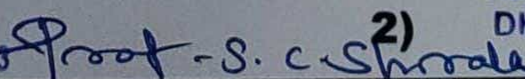
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CERTIFICATE

This is to certify that the M.Sc. project work dissertation entitled "**A study of wavelets, spline wavelet based method for the study of areal rough surfaces and application of wavelets in statistical estimation**" submitted by: **Miss. R Shreedevi (Reg.No.19S14105)** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc. in Mathematics**, is a result of M.Sc. project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021

Place: Dharwad

Date: 02.08.21

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "**A study of wavelets, Haar wavelet based lifting scheme for microprocessor and VLSI applications and Applications of wavelets in physics**" submitted by **Reg.No.19S14106: Miss. Radha Timmanna Hegde** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of M.Sc., in Mathematics, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfilment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 03/08/2021

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that M.Sc., Project dissertation entitled "A study of Wavelets, Chebyshev wavelet Based Numerical Method to Solve Integral Equations And Applications of Wavelets in Chemistry". Submitted by Reg. No-19S14107:

Mr. Raghavendra Dilleppa Kuriyavar of fourth semester M. Sc in Mathematics to the Karnatak University, Dharwad for the award of the Degree of M.Sc., in Mathematics, is a result of M. Sc., Project work carried out by him under my guidance. This Project is Submitted in partial fulfilment of the requirement for the award Of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date:

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P.G.DEPARTMENT OF MATHEMATICS CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled
“**A Study of Wavelets, Multiwavelets based numerical solution of
Integral equation and applications of wavelets in chemical engineering**”
submitted by **Reg.No.19S14108: Mr.Raju Dodamani** of fourth semester
M.Sc. in Mathematics course to the Karnatak University, Dharwad for the
award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project
work carried out by him under my guidance. This project is submitted in
partial fulfillment of the requirement for the award of Master's Degree in
Mathematics during the academic year 2020-2021.

Place: Dharwad

Date:

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P. G. DEPARTMENT OF MATHEMATICS CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "A Study of Wavelets, Wilson wavelet based numerical technique for the solution of differential equations and Applications of Wavelets in power system" submitted by Reg.No.19S14109: Miss. Rashmi Adrushayya Hiremath of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of M.Sc., in Mathematics, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 04/08/2021

Project Guide

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "**A study of Wavelets, Lucas Wavelet Based Numerical Method to Solve differential equations and Applications of Wavelets in Civil Engineering**" submitted by **Reg.No.19S14110: Miss. Rekha Shantageri** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date:

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P. G. DEPARTMENT OF MATHEMATICS **CERTIFICATE**

This is to certify that the M.Sc., project work dissertation entitled "A Study of Wavelets, Chebyshev wavelet based numerical technique for the solution of differential equations and applications of wavelets in Geosciences" submitted by Reg.No.19S14111: Miss. Renuka Ramachandra Hoonkali of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of M.Sc., in Mathematics, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 04/08/2021

Project Guide

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "**A Study of Wavelets, Haar Wavelet Based Method for the Solution of Nonlinear Volterra Integral Equations of First Kind and Applications of Wavelets in Biology**" submitted by **Reg. No. 19S14112: Miss. Reshma. K. Korishettar** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 6-8-21

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled "**A study of Wavelets, An application of Daubechies wavelets in signal processing and an application of Daubechies wavelets in Image processing**" submitted by **Reg.No.19S14113: Miss. Reshma Kadakol** of fourth semester M.Sc. in Mathematics course to the Karnatak University, Dharwad for the award of the degree of **M.Sc., in Mathematics**, is a result of M.Sc., project work carried out by her under my guidance. This project is submitted in partial fulfillment of the requirement for the award of Master's Degree in Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 02/08/2021

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P. G. DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that the M.Sc., project work dissertation entitled
**"A STUDY OF WAVELETS, CHEBYSHEV WAVELET BASED
NUMERICAL METHOD FOR THE SOLUTION OF
INTEGRO-DIFFERENTIAL EQUATION AND APPLICATIONS OF
WAVELETS IN MECHANICAL ENGINEERING"** submitted by
Reg.No.19S14114, Mr. SACHIN C SAUNSHI of fourth semester M.Sc. in
Mathematics course to the Karnataka University, Dharwad for the award
of the degree of **M.Sc. in Mathematics**, is a result of M.Sc., project work
carried out by him under my guidance. This project is submitted in partial
fulfillment of the requirement for the award of Master's Degree in
Mathematics during the academic year 2020-2021.

Place: Dharwad

Date: 20/07/2021

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